# The Reimagined Schoolyard: Cryptocurrency’s Adoption in Tomorrow’s International Monetary Order

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THE REIMAGINED SCHOOLYARD: CRYPTOCURRENCY’S ADOPTION IN TOMORROW’S INTERNATIONAL MONETARY ORDER

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Abstract: This Article looks to specific periods in the socio-legal history of money to make a series of predictive statements about cryptocurrency’s contemporary impact. New forms of currency have been more consequential than simply solving narrowly defined problems. They have shaped relationships between technology and government’s expansionary aims to produce important structural arrangements – sometimes at the cost of disrupting incumbent ones. In the prehistoric era, commodity based forms of money gave way to metal coins and systems of exchange that facilitated trade expansion and would eventually express political power in their physical design. The large-scale circulation of paper notes in seventeenth-century England also responded to a mix of technological and governmental needs that created their own disruptive effects. This paradigm would repeat itself in America’s early history and ultimately lay the seedbed for today’s global political economy. In each of these historical periods, social participation remained a key element in the evolution of state power through its currency. This history gives rise to two observations about digital currency and its prospects. The first suggests cryptocurrency’s disruption will echo prior experiences with new currency adoption while attempting to address some perceived problem. The second observation argues that cryptocurrencies signal a new phase in the constantly evolving project of defining law’s role in the relationship between currency, governance and regulation; and where the modern state remains interested in controlling money’s production and movement.

INTRODUCTION

Much has been written about Bitcoin, Ethereum, Litecoin, and other forms of cryptocurrency. These currencies differ considerably from their state-issued fiat counterparts in several respects. Bitcoin, for example, is privately issued under a decentralized system, uses a recordkeeping protocol in which a widely dispersed constituency of actors independently documents

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transactions, and supports the transmission of money through channels while allowing senders and receivers to remain anonymous.\(^1\) Even this cursory description evinces a significant departure from the prevailing construction of money and its supporting payment systems, which are heavily embedded within societal norms and our international political economy.

The bulk of legal scholarship in the cryptocurrency field focuses on law enforcement,\(^2\) taxation,\(^3\) securities regulation,\(^4\) financial technologies (or “fintech”),\(^5\) corporate law,\(^6\) and regulation more broadly.\(^7\) Although interesting and important, this work largely ignores the arenas of history and anthropology, where one finds useful discussions about the respective roles of private actors and government in germinating trust and social participation—two essential features of currency adoption. Over time, new forms of money have both shaped and responded to social ordering through a mix of pragmatism, transactional exigency, and expressions of statehood juxtaposed against private interests. Writing about the semiotics of money, one scholar articulated money’s meaning, effects, and symbolism as follows:

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Money is the medium whereby often-anonymous property owners communicate in market exchanges. Furthermore, in the same sense that a word has no meaning outside of a language, money cannot be understood outside of a monetized culture. Hence, both are self-contained discursive systems in which the meaning and experience of a symbol must be interpreted by making references to the system within which the symbol operates. There is neither an extra-linguistic nor extra-monetary reality that may aid in the understanding of these symbols.8

As an alternative to making arguments for or against cryptocurrency’s regulation, this Article uses history to make a series of predictions about the state imperatives that might prompt a regulatory response.9 The discussion that follows makes three interrelated claims. The first argues that cryptocurrencies elicit fundamentally similar kinds of skepticism compared to those prevalent in the eighteenth and nineteenth centuries when mass printing made the production of paper money possible.10 This historical record supports the second argument, which maintains that eighteenth- and nineteenth-century governmental involvement in stabilizing paper currency presaged present-day regulatory treatments of cryptocurrencies—even after accounting for important technological differences and for the larger role currency plays in today’s global monetary order.11 Then, as now, the state had the capacity to reconfigure itself around shifting constructions of money. Although this strategy left room for private ordering, past and present practices reflect a strong governmental interest in capturing control over the production of money as a strategic expression of state power. The history of this adaptiveness supports the Article’s third premise, which is that a mixture of global politics, new mercantilism, soft law norms, and public law will shape the extent to which the American regulators remain interested in controlling money’s production and movement as traceable processes in the way it has done since the end of the nineteenth century.12

A. Currency Development in the Schoolyard

Most of us learn about the concept of commodity-based money at a young age, usually at a playground or in a schoolyard, where there is often a

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9 See discussion infra Part IV.
10 See discussion infra Part IV.A.
11 See discussion infra Part IV.B.
12 See discussion infra Part IV.C.
brisk trade in items children consider valuable. This trading environment crudely parallels the trajectory of society’s relationship with money as it evolved from a barter-based commodity to a fiat-based concept. Children commonly form a consensus about the things they value more than others—such as baseball cards or comic books. They also have the capacity to attribute degrees of value within and across different kinds of objects, as well as to respond to things that might influence their attitude toward certain objects. For example, a baseball player’s improved or diminished standing over a given period might alter the value of cards featuring his image. Similarly, new characters or a reissued series might alter a comic book’s value. Staying informed of these developments requires sustained effort.

Over time, two complementary hierarchies emerge. The first reflects the children’s preference for certain tradeable items as opposed to others, with the schoolyard’s shrewder entrepreneurs knowing which baseball cards are the most valuable. Eventually, children will also develop more elaborate ways of determining what constitutes a fair exchange when they exchange cards for other kinds of items, such as chewing gum or marbles. They will form these norms through looking, seeing, and touching items they play with; through communication with peers, family members, and others in their communities; and through successful marketing strategies. Consensus and sufficient levels of participation are essential to maintaining this system of values, which can be difficult given the shifting tastes within a given cohort of children who are also aging. For example, one group of eight-year-olds might like toy cars, only to outgrow them and pass them onto younger siblings who find video games more interesting. Such constant fluctuations in the appetite for particular kinds of goods necessarily alter the perceived value of things deemed tradeable, which ensures a limited lifespan for this tradability. The second hierarchy is derived from the participants themselves, each of whom has a relationship to the goods traded that impacts their social standing. Whereas some children will always have the most valuable items, others will become known as “brokers” capable of connecting a child who wants something with a possible supplier. As with society in general, there are also reputational consequences where one person becomes known for trading in counterfeit items or being generally unreliable. Again, the underlying value of the goods traded supports each child’s social standing. A child who was prominent because she always seemed to have a certain toy might see her standing diminish once peers find interest in something else. Keen to retain their social standing, some children might resort to

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discouraging trade with others, threatening to end friendships with those who might trade in specific goods, or outright theft of another child’s possessions.

 Participant conflict raises the specter of a new regulatory participant: teachers, parents, and other adults who occasionally intervene to quell conflicts that erupt in the schoolyard trade. The perceived needs of the children will determine the precise nature of adult intervention. Short of outright prohibition, adults might impose operating rules, such as forbidding any kind of trading activities during instructional time or confining such activities to specific locations conducive to adult supervision. Teachers may incorporate trading concepts within their instructional pedagogy. Children who resort to bullying, violence, theft, or other forms of disruptive behavior would face disciplinary consequences considered appropriate for their age and circumstance. The mere potential for such interventions might incentivize better commercial behavior among the smarter children who fear adult intrusion might lead to unwanted restraints or an outright prohibition against trading altogether.

 Because children grow up, they inevitably find ways to leave their trading behind as they move on to adolescence. Each child exits this marketplace in his or her own way. Some items are given to younger siblings who might form a fresh crop of entrants to replace older children. Such transfers are sustainable where children have things with enduring value. Others may try selling their inventory. Yet another group of children may choose to keep these items until reaching adulthood when they have children of their own or eventually see value in selling them in antique stores or specialty shops.

 The child’s schoolyard marketplace appears to reflect several features. First, children have their own individual and collective processes for endowing items with value. But childhood’s fleeting nature and the constantly changing supply of toys to pique a child’s interest ensure these evaluative processes remain highly fluid. Second, the items children consider valuable approximate the features of commodities insofar as they are basic goods deemed interchangeable with items of the same type and used in schoolyard commerce. Admittedly, children trade in goods that fall outside the strict meaning of commodities, which are normally taken from their natural state and minimally altered for sale in the marketplace. The analogy remains useful, however, because children typically trade in things considered basic to them. Third, although children trade in goods adults might consider fungible, these items are not necessarily the best mechanisms for storing value. Mass produced dolls or electric train sets may seem highly sought after in their year of production but decline in value relative to a “limited edition” model airplane sold decades after its creation. Holding on to these items as stores of value will produce varied financial outcomes.
Fourth, children form trading relationships that are both transactional and social insofar as reputational standing and trust are prerequisites to doing business. In other words, the nature of these relationships must be of a certain quality to support the trade in commodities. Fifth, the “currency” created out of things traded remains barter-based until children grow up and cease participation. They either give away their assets, store them for safe keeping, or they depersonalize their relationship to the commodity-based currency by selling (or “cashing out”) their interest. Finally, prospective regulators—be they teachers, parents, or other adults—have a range of possible roles to play in relation to the children’s activities and to each other. The extent of their involvement depends on the degree to which mutual trust continues to influence the relationships children form with each other. But adults have their own goals, and they may see merit in expanding their participation as a means of engineering desired behavior among the children in their care. They might condition access to toys on completing chores or homework, thereby subordinating concern for the children’s interests to other goals supervising adults consider more pressing.

What can those with a scholarly interest in the history of currency as an anthropological phenomenon glean from the way children trade in goods they deem important? Commodity-based currencies are at the core of schoolyard economies. They exist at the center of structural relationships, serving as the seedbed for germinating social hierarchies, rules of participant engagement, dispute resolution, and consequences for misconduct. These configurations also explain why fundamentally different currency types can be disruptive enough to incentivize competition or outright resistance. Radical departures from incumbent currency norms are inherently mismatched with structures previously configured for preexisting transactional models. This problem captures the limits inherent in replicating schoolyard mercantilism as a currency adoption paradigm. Constantly shifting tastes among school-aged children who pass through their respective marketplaces for a few short years limit the expansion of any single currency. Despite its ephemeral nature, schoolyard mercantilism remains analytically useful because it describes the barriers to currency expansion, and it invites discussion about societal responses to incumbent-challenger contests that arise with the development of new payment types.

B. Defining History’s Value to Regulatory Discourse

In its various forms, regulation functions to engineer desired behaviors among participants within a defined landscape. Its limitless configurations range from well-established customs enforced under threat of social ostracism to more comprehensive and formal systems. These varied
arrangements typically incorporate elements, such as the setting of standards, establishing conditions of entry and maintenance of good standing, and devising ways to address non-compliance. Government’s status as the ultimate rule-maker allows it to deploy the full machinery of public law in aid of state goals or at the behest of influential lobbyists seeking to assert their interests. But state presence is not a definitional requirement. Indeed, some of society’s most powerful forms of non-governmental regulation exist in the form of “soft law” structures, such as payment and messaging protocols.14 Nor does regulation necessarily operate free from moral hazard where it confers benefits to some parties at the expense of others.15

It is beyond this Article’s scope to canvass the full breadth of regulation’s meanings, structures, and processes. Even those meanings germane to this discussion pose significant challenges, given questions about what is being regulated, which parties should be regulatory subjects, and the originating authority for prospective regulators.16 There are also the additional problems associated with regulating money, which typically involve the state—an entity constantly in need of money and thus most likely to regulate. A cursory view of history would leave libertarian thinkers justifiably skeptical about the state’s capacity to regulate new forms of currency without gradually prioritizing its own interests above those of all others.

Over time, various forms of government have waded into the business of currency production under the guise of engendering participant trust in the marketplace—only to further expansionary ambitions in ways that seize total

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14 Through the Society for Worldwide Interbank Financial Telecommunication (SWIFT), financial institutions around the world transmit payment messaging information through secure networks. Shobhit Seth, How the SWIFT System Works, INVESTOPEDIA (Feb. 11, 2020), https://www.investopedia.com/articles/personal-finance/050515/how-swift-system-works.asp. These transmittals operate across a SWIFTNet platform and use Business Identifier Codes (BICs, previously Bank Identifier Codes) commonly known as “SWIFT codes.” Id.; What is a BIC code?, SWIFT, https://www.swift.com/standards/data-standards/bic (last visited May 20, 2020). This is a useful example of soft law insofar as the governments do not promulgate the payment protocols used in SWIFT transmittals.


control of producing money.\(^\text{17}\) This historical pattern coalesces around two themes. The first pertains to the aesthetics of new currency types. Both fraudsters and legitimate actors alike have an interest in money’s visual and tactile features, especially when a potentially vulnerable public is exposed to new forms of payment. Absent public or private regulation, widely accessible technologies erode legitimate currency producers’ capacity to retain exclusive control over the production of authentic notes and coins. Placing such production under exclusive government control and criminalizing attempts to privately mint currency has been a common template for promoting societal trust as a critical determinant of currency adoption. Controlling currency’s aesthetic also presents opportunities to showcase technological and political symbolism. Despite paper money’s declining use, it continues to elicit contemporary discussions about innovative features that seek to outsmart counterfeiters while paying homage to historically significant figures or events.\(^\text{18}\) These discussions echo eighteenth-century writings touting the steel engravings used to produce bank notes made possible with the advent of mass printing.\(^\text{19}\)

The second theme centers on capturing currency production as a vehicle for the broader project of state expansion. A stable, trusted, and widely used currency is vital to most economies. It becomes an important government instrumentality, however, as formal state currency co-existing with other expressions of power. Whereas eighteenth- and nineteenth-century currency production conveniently provided a means to finance military campaigns, twentieth-century monetary norms exist within a slightly different paradigm. Against the backdrop of large-scale social participation in a particular currency, regulations governing its production can become consequential when they creep into other rule-making domains. For example, regulations now exist to prevent foreign nationals from holding U.S. dollar depository accounts with financial institutions that must comply with such prohibitions as a condition of access to American capital markets.\(^\text{20}\) The relationship between trustworthiness, broad-based social endorsement of a currency in


\(^{20}\) See, e.g., International Emergency Economic Powers Act, 50 U.S.C. § 1701 (2018) (authorizing the president to declare the existence of an “unusual and extraordinary threat . . . to the national security, foreign policy, or economy of the United States” originating “in whole or substantial part” from foreign soil). The declaration allows the president to authorize the blocking of transactions and the freezing of assets in relation to the declared threat. Id. § 1702.
global circulation, and expressions of state power reflects a nest of significant co-dependencies organized around the construction and status of money.21

These themes in relation to new currency adoption suggest the advent of cryptocurrencies should prompt regulatory responses informed by history. Cryptocurrencies are issued, circulated, and stored in a manner that is fundamentally misaligned with prevailing monetary cultures, presenting a range of disruptive challenges to existing payment norms.22 But this new currency also mimics historical challenges in today’s marketplace where concerns about trust and reliability constrain their wider use—and where experts face questions about whether prevailing institutional arrangements can adapt to this new medium. Much like the schoolyard-based trading, where the arrival of new and radically different exchangeable commodities can upend incumbent structures and status-based relationships, actors heavily invested in the established monetary order now face the specter of uncertainty wrought by fundamentally different currency types. The co-dependent relationship between financial institutions and today’s regulatory state reflect a mutually agreeable division of labor between government and systemically important private actors who derive important benefits from being essential to the administration of public law. Some have already tried positioning themselves in response to new currency types. For example, credit card issuers attached to the largest U.S. banks now forbid cardholders from using their credit cards to buy Bitcoin.23

Although a very different calculus might tempt present-day governmental interest in regulating cryptocurrencies, history suggests any impetus toward regulation will be fundamentally similar to past motivations that originate from the desire to promote social trust, which becomes a beachhead for advancing other state interests.24 Broad expressions of

22 Allison Caffarone & Meg Holzer, Every American Experiment Sets a Precedent: Why One Florida State Court’s Bitcoin Opinion Is Everyone’s Business, 16 J. Int’l Bus. & L. 6, 8–13 (2016) (comparing the issuance of Bitcoin to conventional U.S. currency and explaining the peer-to-peer model of Bitcoin transactions that do not require authorization by conventional banks); Kevin Dowd & Martin Hutchinson, Bitcoin Will Bite the Dust, 35 Cato J. 357, 360 (2015) (explaining how Bitcoin transactions differ from checking transactions insofar as the latter uses banks as a centralized authority to verify transactions).
individual agency and modern statehood depend on a specific kind of relationship to money, which makes this Article a timely contribution to existing cryptocurrency scholarship. The U.S. dollar is an essential feature of American international statecraft. In both public and private spheres, a vast web of institutional, legal, cultural, and other norms has taken shape around the dollar as an incident of power that transcends its status as simple currency. Public law obligates private institutions to participate in, and cooperate with, a wide range of state actions that depend on the capacity to trace money’s movement. Tax enforcement, money laundering, securities regulation, trade embargos, and compliance with international economic sanctions depend on a set of arrangements organized around conventional treatments of currency within the wider context of a global payment ecology. American dollar hegemony also continues to give the United States important influence over the international monetary systems. Governmental interest in cryptocurrency’s disruptive potential thus reflects the state’s vision of itself in the global political economy.

This Article is organized as follows: Part I offers a general overview of modern money’s technical meaning and prehistoric roots, which date back to the seventh century, BCE. Part II locates this history in the English contexts, surveying the history of social, commercial, and legal treatments of paper money between the seventeenth and nineteenth centuries. This period coincided with the advent of technologies that made mass printing more feasible, and the concomitant rise in paper money circulation presented concerns, which roughly parallel the questions cryptocurrencies pose today. Part III connects paper money to early America’s fight for independence, disputes over the proper exercise of federal power, and the Civil War’s economic demands. Part III also describes how efforts to endow paper money with meaning would eventually transcend the paper by transforming U.S. currency into a globally significant instrument of state power sitting at the center of multilateral institutions and a heavily networked international monetary landscape configured to depend on the dollar’s continued dominance. Part IV introduces readers to cryptocurrency, with a particular emphasis on Bitcoin, and discusses how production and use of this type of currency are fundamentally mismatched with the prevailing rubric of monetary norms, which have undergirded trust in conventional currency strategic relationships with Darknet vendors and use the Bank Secrecy Act to regulate cryptocurrency exchanges).

25 See discussion infra Part I.
26 See discussion infra Part II.
27 See discussion infra Part III.A–C.
28 See discussion infra Part III.D–E.
types for much of the last century.\textsuperscript{29} Looking to history, Part IV also argues engendering trust in cryptocurrencies faces challenges similar to those extant during the adoption of paper money two hundred years ago, and predicts that the reliable presence of trust—as measured by potential harm to the public and disruption to the overall financial system—will remain the metric determining government regulation.\textsuperscript{30} The Article concludes by advocating a restrained public law response that is mindful of government’s historical record of regulating new forms of money while leaving sufficient space for private ordering to devise and refine its own operating rules—consistent with other areas of modern financial regulation.

I. WHAT IS MONEY?

Money is defined as anything that functions as a medium of exchange, a unit of account, and a store of value.\textsuperscript{31} This simple description is remarkably complex insofar as money must have some kind of value and therefore possess utility as such. Shifts from commodity-monies to currency; the interplay between stabilizing commerce and governmental power; and the advent of metallic money and, eventually, paper notes have all shaped money’s developmental trajectory.\textsuperscript{32} This historical arc has given money legal qualities that still operate to this day. Money’s social constructions preceded its institutionalization within law, politics, and elsewhere. In its earliest, commodity-based evolutionary phase, societies determined an item’s value and utility as a prospective form of money. Money’s technical meaning, therefore, remains derivative of social endorsements used to determine when an item is deemed to have value and the acceptable mediums of exchange. Expanding social adoption of certain kinds of money reflects a degree of trust among parties using a common medium in accordance with shared norms. These norms evolve over time to recognize one or more payment types and to establish reliable metrics for valuing different species of payments against each other.

A. Commodity-Based Money

A commodity is a basic commercial good considered interchangeable with commodities of the same kind, such as grain, oils, livestock, and precious metals. Commodities are considered “basic” because they also serve as the raw materials used to produce secondary goods. It is possible for an

\textsuperscript{29} See discussion \textit{infra} Part IV.A–B.
\textsuperscript{30} See discussion \textit{infra} Part IV.C.
\textsuperscript{31} Milton Friedman, \textit{Money Mischief: Episodes in Monetary History} 16 (1962).
item to simultaneously share the features of money and commodities. Indeed, the earliest forms of money fit this description.\textsuperscript{33} In Ancient Egypt, sticks, staves, and copper or gold items served as mediums of exchange.\textsuperscript{34} Livestock could be traded for grain in a transaction where there was a centrally determined metric applied to the goods involved. These same commodities could also be used as stores of value and units of account.

Early commodity-based monetary systems posed problems that limited their use as money, especially in barter economies. A farmer wishing to sell his or her cattle—rather than exchange it for something wanted—was forced to accept undesired goods as a condition of exchange. One solution to this problem was to treat certain chattel commodities as units of account detached from a bartering obligation.\textsuperscript{35} A farmer in ancient Egypt, for example, might have grain for sale independently valued at 120 deben of copper.\textsuperscript{36} He could sell this commodity free from any other obligations and use the sale proceeds to buy four oxen worth 30 deben each from a party unconnected to the prior sale of grain. This innovation reduced market inefficiencies by eliminating problems of asymmetry commonly found in barter economies.

Wide swaths of societies from the prehistoric periods onward developed similar formulations of money by valuing goods in relation to weighted metals, stones, or other objects.\textsuperscript{37} Greek and Roman merchants used various metals and livestock as money.\textsuperscript{38} One also finds references to such monetary norms in the Bible.\textsuperscript{39} For example, the Book of Exodus describes the half-shekel (or beka), shekel, and talent in relation to each other.\textsuperscript{40}

Even as units of account, items such as cattle and grain continued to pose challenges as forms of money. Weather, access to water, the threat of disease, and other agricultural challenges rendered these assets unreliable stores of value. Compared to metal objects, cattle and grain were immobile, required maintenance through intense labor, and were not ideal mediums of exchange when making large payments. As payment needs continued to

\textsuperscript{33} WILLIAM STANLEY JEVONS, MONEY AND THE MECHANISM OF EXCHANGE 19–29 (1875).
\textsuperscript{35} Id.
\textsuperscript{36} A deben was an ancient Egyptian stone used as a unit of weight to denote the value of goods. J. G. Manning, Demotic Egyptian Instruments of Transfer as Evidence for Private Ownership of Real Property, 71 CHI.-KENT L. REV. 237, 265 (1995).
\textsuperscript{37} EINZIG, supra note 34, at 193–210.
\textsuperscript{38} Geva, supra note 32, at 125.
\textsuperscript{39} See, e.g., 2 Chronicles 1:16–17 (King James) (“Solomon had horses brought out of Egypt, and linen yarn: the king's merchants received the linen yarn at a price. And they fetched up, and brought forth out of Egypt a chariot for six hundred shekels of silver, and a horse for a hundred and fifty . . .”).
\textsuperscript{40} Exodus 38:25–26.
evolve, metals emerged as a more useful form of money.\textsuperscript{41} Metals proved to be more portable, durable, divisible into standardized shapes or sizes, and easier to conceal. Gold and silver also offered the advantage of being commonly recognized and easily convertible into standardized shapes, pieces, and weights.

Evolving systems of weights and measures would support commercial contact across large distances. To address variances in measurements from one region to the next, merchants developed equivalencies between different systems to promote trust and expand trade. One Mesopotamian text dating back to 1800 BCE describes the conversion of Dilmun—a metric once used on the Arabian Peninsula—to the Old Babylonian Ur: “[T]hey had given us 5,532 2/3 minas of copper according to the standard of Dilmun. Its weight is in total 611 talents 6 2/3 minas according to the standard of Ur.”\textsuperscript{42} Itinerant merchants were wise to travel with small kits used to make necessary conversions that supported trade between distant societies. Trust in each constituent monetary system forming part of these conversions was therefore essential and framed in moral terms.\textsuperscript{43}

\textbf{B. Money’s Evolution from Commodity to Currency}

The practicality of metal-based money eventually begat coining—the craft of producing standardized units of freely-transferable metals used as currency. This innovation produced metals that differed from other forms of metallic items, like spears or jewelry, because coins existed solely to function as money. As an artisanal and commercial process, refined coin production also provided uniformity in weight and fineness. While coining’s precise origins are a matter of some debate, short-lived examples in Assyria, Cappadocia, Crete, and India date back to the period between 2250 and 2150 BCE.\textsuperscript{44} Coin production rapidly expanded after advancements in Lydia (in Asia Minor) during seventh century, BCE. Lydians produced flat, disk-like coins and bean-shaped electrum ingots bearing small, standardized counterstamps, known as \textit{punch marks}.\textsuperscript{45} These markings combined with improvements in making uniform pieces to imply each coin’s metallic weight and content were as described.\textsuperscript{46} This practice quickly spread throughout the

\begin{itemize}
\item \textsuperscript{41} Geva, \textit{supra} note 32, at 128.
\item \textsuperscript{42} Michael Roaf, \textit{Weights on the Dilmun Standard}, 44 \textit{IRAQ} 137, 137–138 (1982).
\item \textsuperscript{43} \textit{Deuteronomy} 25:15 (King James) (“Thou shalt have a perfect and just weight, a perfect and just measure shalt thou have . . .”).
\item \textsuperscript{44} \textit{Arthur Burns}, \textit{Money and Monetary Policy in Early Times}, 38, 51 (reprt. 1996) (1927); \textit{Einzig}, \textit{supra} note 34, at 209–10.
\item \textsuperscript{45} \textit{Einzig}, \textit{supra} note 34, at 200.
\item \textsuperscript{46} \textit{Id.} at 196, 200–19.
\end{itemize}
Greek world. Persia would also adopt this practice after conquering Lydia in the middle of the sixth century, BCE.47

Technological refinements in the aesthetic of metal currencies produced several important effects. They implied their authenticity and trustworthiness.48 Embossing coins with large images covering much of their surface deterred cheaters from underhandedly diminishing their real value by chipping away at them. Users would accept the coin’s markings as a reliable statement of its metallic content and commodity value.49 There were also changes in the nature of metal used in coinage. Whereas the Greeks replaced electrum—a naturally occurring alloy of gold and silver—with silver in the fifth and fourth centuries BCE,50 Romans were using copper coins by 450 BCE.51

C. Coin Making as an Incident of Power

Despite technological improvements, coin production did not immediately produce a widespread and uniform system of money. Systems used to convert different forms of money were necessary byproducts of the wide variance in monetary traditions, which remained localized. Although acknowledging this fragmentation does not deny money’s commercial benefits (discussed above), state administrative needs, such as paying for public works and tax collection, helped institutionalize money as a mechanism for animating government’s operation. Articulating government’s role in the historical relationship between commerce and money’s expansion remains a matter of some debate. Much of this disagreement revolves around whether Lydia—the origin of coinage’s modern iteration—was a commercial center.52 Regardless of which opinion represents the prevailing view, Lydian coinage production remains a useful focal point for examining money’s evolution under the aegis of government oversight, which supported commercial expansion.53 Lydia conquered a number of Greek city-states in the sixth century BCE and was subsequently conquered itself by the Persians, which had the effect of expanding coin usage.54 The Roman Empire

47 BURNS, supra note 44, at 45.
48 Id.
49 Id. at 58–61.
50 Id. at 56.
51 Id. at 48–49; EINZIG, supra note 34, at 229.
52 Burns argues that Lydia hosted a highly developed commercial center, which would support the thesis that mercantilism was the primary impetus for advances in coin production. See BURNS, supra note 44, at 52. Einzig takes an opposing view, suggesting the city state was mainly agricultural. See EINZIG, supra note 34, at 215, 218.
54 Geva, supra, note 32, at 131.
established a system that harmonized the production of universally accepted coins, made more consequential by its vast territorial footprint.\textsuperscript{55}

Supervision of coin making changed alongside the successive conquests described above, with control alternating between kings, private citizens, local magistrates, or commissioners until the Emperor of Rome ultimately assumed control over issuing gold and silver coins.\textsuperscript{56} Even before Roman conquests, state seizure of currency production was not always ethical. Members of the merchant class who became rich privately issuing money could subsequently forbid the practice once they held public office.\textsuperscript{57} In turn, they could bolster their status as public officials by harmonizing money issuance (bearing their seals) in the name of promoting commercial trust.\textsuperscript{58}

The appearance of images on coins to express political power became a symbolic byproduct of territorial expansion, burnishing the notion that currency’s aesthetic was just as political as it was utilitarian.\textsuperscript{59} The portraits of rulers on widely circulated coins were useful expressions of state sovereignty.\textsuperscript{60}

As with children in the schoolyard, shared interests and common experience determined the items that became commodities and mediums of exchange in ancient societies. These civilizations devised units of account and methods for converting weights and measures when they differed between markets.\textsuperscript{61} Although they diverged from schoolyard-based economies in their evolution from commodity-based monies to currency, they nonetheless formed important hierarchies around prevailing constructions of money. Whereas the constant turnover of commodities and participants undermined attempts to defend the schoolyard’s hierarchy from change, merchants in ancient societies were similarly invested in preserving any economic power gained through currency adoption until toppled by conquest.\textsuperscript{62} In both contexts, trust supported trade while playing a role in consolidating influence—especially where certain actors sought to translate their social and economic standing into political power.

II. PAPER MONEY, COMMERCE, AND BRITISH EXPRESSIONS OF STATEHOOD

Admittedly, this discussion’s transition from Ancient Rome to seventeenth-century England omits a great deal of important monetary

\textsuperscript{55} BURNS, supra note 44, at 100–08.
\textsuperscript{56} Geva, supra note 32, at 140.
\textsuperscript{57} Id. at 137.
\textsuperscript{58} Id.
\textsuperscript{59} Id. at 138–39.
\textsuperscript{60} Id.
\textsuperscript{61} BURNS, supra note 44, at 48.
\textsuperscript{62} Geva, supra, note 32 at 127, 137.
The discussion that follows will focus on the latter historical period and describe where paper money makes its western appearance and where its evolution repeats currency adoption’s themes of trust, social participation, technical innovation, and aesthetic norms. All are present in the story of paper money’s impact on English political economy. Despite important differences in the state’s expression of power in relation to private commercial interests, expanded circulation of new currency fueled territorial expansion and trade. Developments in paper currency’s production also showcased technological advancements while building public trust in a defamiliarized medium of exchange.

A. Goldsmith’s Notes and the Birth of Modern Banking

Seventeenth-century merchants stored surplus monies in the Tower of London, which served as the King’s Mint. This practice continued until 1640 when Charles I, rebuffed by creditors, seized silver bullion held in trust at the mint in what became known as the Stop of the Exchequer. Merchants thereafter opted to leave their deposits in the custody of goldsmiths. Goldsmiths enjoyed considerable commercial influence, given their role as England’s early bankers. Today’s reader easily forgets that seventeenth-century life was relatively insecure. The specter of war, disease, plagues, and other potentially catastrophic events created a demand for safe places to store money. Goldsmiths filled this need by providing depository services, which would eventually complement a profitable lending business.

Goldsmiths issued special receipts describing the issuer’s undertaking to pay the amount represented by the deposit upon presentment. Bearers of these instruments could withdraw sums up to the deposit’s full amount. Over time, goldsmiths replaced a single receipt for each deposit with several smaller receipts representing the same aggregate value, allowing obligors to satisfy multiple debt obligations against the same deposit account. These receipts—commonly described as “goldsmiths’ notes”—constituted bills of exchange and eventually became known as “cheques” because their appearance and function mimicked similar instruments and accounting

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64 See Robertson, supra note 19, at 49.
65 Geva, supra note 32, at 145.
66 KWARTENG, supra note 17, at 24–25.
67 Geva, supra note 32, at 145.
68 Id.
69 KWARTENG, supra note 17, at 24.
70 Geva, supra note 32, at 147.
71 Id. at 145.
72 Id.
systems used by the government treasury, which was known as the “exchequer.” As with other bills of exchange, cheques offered the advantage of making payment without requiring payors to physically relocate coinage.

Despite their benefits, cheques were not risk-free instruments, which limited their social adoption. Debts paid by goldsmith’s note were not fully discharged until presented to the issuing institution and the creditor received payment—a concept known as the conditional payment principle. Failed issuers also implied similarly insolvent depositors, which was of little consolation to injured creditors pursuing claims through the courts. England’s need for funds to finance its military campaigns would eventually support a preference for cheques, which lead to the demise of Goldsmith’s notes. England was intermittently fighting for control over colonial trading and influence over Europe between the middle of the seventeenth and eighteenth centuries. These campaigns placed the British government under pressure to raise much needed revenue at a time when it was also considered a poor credit risk. The “forced loan” to Charles I in 1640 preceded the repudiation of state debt in 1672, during what became known as the Stop of the Exchequer. The stop was originally imposed for a year, ending December 31, 1672, but lasted until January of 1674. During this time, bankers held more than ninety-seven per cent (or £1,282,143) of the King’s total debt, and the debacle proved to be particularly ruinous for creditors holding six of the largest loans in the bank.

Established in 1694, the Bank of England made raising money through government debt issuance easier and more affordable. The bank issued notes similar to goldsmith’s receipts in exchange for loans payable to each receipt’s bearer on demand, and courts eventually recognized these notes as cash, effectively transforming them into currency. Bank of England notes

74 Geva, supra note 32 at 148.
75 Id.
77 Id.
78 Order in Council (Jan. 5, 1672), reprinted in CALENDAR OF STATE PAPERS, DOMESTIC SERIES 68, 68 (F. H. Blackburne Daniell ed., 1671-1672 ed. 1897); see also Horsefield, supra note 76, at 511–28 (providing an interesting history of the Stop of the Exchequer).
79 Treasurer Clifford’s Subscription of a Docquet (May 1673), reprinted in CALENDAR OF TREASURY BOOKS 130 (William A. Shaw ed., 1672–1675 ed. 1909).
80 GLYN DAVIES, A HISTORY OF MONEY 255 (3d ed. 2002). Davies stated: “Sir Robert Viner was owed £416,724; Blackwell £259,994; Whitehall £284,866; and Lindsay, Portman and Snow each between about £60,000 and £80,000.” Id. Viner’s bank failed in 1684; Blackwell declared bankruptcy in 1682; Whitehall went to debtors’ prison in 1685; Lindsay absconded in 1679; Portman declared bankruptcy in 1678; and Snow went to debtors’ prison in 1690. Id.
81 Geva, supra, note 32, at 145.
carried less risk than goldsmith’s notes—the latter only being redeemable subject to the issuer’s solvency. Although the Bank of England was not the first central bank, it would eventually become the world’s most important until the onset of U.S. dollar hegemony in the twentieth century. Its creation was the culmination of extensive discussion in government and among London’s business community about the merits of having a central bank.

Merchants and bankers were confident in their ability to support such a bank, and the government needed cash to sustain its military campaigns against Louis XIV, then considered Europe’s most powerful ruler. The bank raised £1.2 million in its first issuance.

The Bank of England’s creation produced several consequences, three being germane to this Article. First, the bank altered commercial influence as lenders to a cash-strapped government anxious to finance its expansionist goals. Nonetheless, scholars should take care not to overstate this point. Although the bank’s creation grew in part out of lenders’ refusal to extend credit to the government, there was still widespread commercial support for the establishment of a central bank that would produce paper notes. Indeed, the goldsmiths themselves would come to hold deposit accounts with the Bank of England and were thus invested in its success. Second, shared interest in preserving the Bank of England’s existence marked an important step toward building public trust in paper money, given the limited likelihood that the issuer would become insolvent. As discussed below, this was also a modest development, because the wider British public remained hesitant to use paper money until the mid-1800s. Third, Bank of England notes were

83 Geva, supra note 32, at 145.
84 Nor was the bank the first to consider the large-scale circulation of paper money. The famous Scottish economist John Law became influential for testing the theory that paper was a better medium for money than metals and that increasing the supply of money would expand trade. Kwarteng, supra note 17, at 29. Prior to his appointment as Controller General of Finances of France under the Duke of Orleans, Law established France’s first central bank in 1716. Id. at 30. He also founded the ill-fated Mississippi Company, a corporation established to support land development and speculation in French colonies in North America and the West Indies. Id. at 30–33. The failure of this latter enterprise became known as the Mississippi bubble and prompted Law’s resignation from his post as France’s Controller General. Id. at 33. For a discussion of several other central banking schemes discussed prior to the Bank of England’s formation, see J. Keith Horrfield, British Monetary Experiments, 1650–1710 (Harv. Univ. Press. 1960); John Law, Money and Trade Considered: With a Proposal for Supplying the Nation with Money 94 (1705).
85 Kwarteng, supra note 17, at 25.
86 Davies, supra note 80, at 257.
87 Kwarteng, supra note 17, at 27.
88 Private note issuance was gradually phased out and ended by 1921. See Geva, supra note 32, at 152.
89 Kwarteng, supra note 17, at 25.
90 Id. at 150.
91 Robertson, supra note 19, at 33.
considered legal tender whereas goldsmith’s notes were not—the difference being that legal tender represented a form of payment recognized as valid for meeting a financial obligation. In other words, the conditional payment principle only remained applicable to goldsmiths’ notes.

Although banking and paper note issuance were important historical developments, these financial innovations did not displace coins. This was consistent with the Bank of England’s decision to float its notes relative to gold and to formally adopt the gold standard in 1816—cementing the banknote’s status as commodity money. As one scholar observed, “the healthy development of the banks themselves was crucially dependent upon the foundation of a sound and sufficient supply of the traditional and officially most important form of money; gold, silver and copper coins.”

Trustworthiness in notes, therefore, remained tethered to confidence in a note’s issuer, as well as to the assurance that metallic coins existed somewhere to underpin each note’s face value. Alas, parties holding such notes had no easy way of instantaneously determining their underlying value in an economy where these instruments remained unfamiliar to most people. Available denominations reinforced this limited circulation, because smaller five-pound notes did not exist before 1793.

B. The Eighteenth-Century Aesthetics of Paper Money

By their mere appearance, paper notes did not engender confidence. Relative to the physical and aesthetic qualities of heavy metal coins, paper notes seemed flimsy. Changes in the notes’ mechanical reproduction gradually shaped public confidence in their use. Industrialization gave rise to a subspecialty of printing—known as technical illustration—that developed a distinctive appearance, consisting of machine-drawn, steel-engraved lines. This printing process showcased human progress through a special form of mechanization that maintained consistency despite large scale production. An 1819 patent application for steel plate duplication illustrates how production methods—which required the work of artists and engineers—blended the technical and artistic while defeating prospective forgers:

Supposing, for example, twenty-five artists to be employed at once, each to make an engraving that would require two months to complete, the combination of all these engravings upon one plate, would concentrate the labour of more than four years, which period

92 Davies, supra note 80, at 299.
93 Robertson, supra note 19, at 34.
94 Id. at 31.
95 Id. at 35.
could not be shortened by any combination of counterfeiters, in attempt to make an imitation, seeing that in such an attempt, only one at a time could work upon the same plate, and seeing that the forger could not resort to the same method, on account of the vast expense, and other obvious reasons.96

The application’s eighty-one signatories represented a wide range of occupations, including “artist-engravers to mechanical draftsmen, papermakers, civil engineers, and employees of the Royal Mint,” reflecting the broad cross-disciplinary interest in this emerging craft.97

Discourses about the craft of mechanized design and reproduction turned their attention to banknotes, thanks in part to increasing rates of forgery in the early nineteenth century. Detected forgeries rose from 4,825 in 1811 to nearly 28,000 by 1820.98 Granville Sharp produced a noteworthy essay in response to a competition asking contestants to answer the following question: “In what ways can any of the articles collected at the Great Exhibition of 1851 be rendered serviceable in the interests of practical banking?”99 Sharp placed considerable faith in using mechanization and mechanical image reproduction to endow slips of paper with cultural meaning while giving it a distinctive appearance. Much like the patent application described above, Sharp envisioned a banknote design concept that was instantly recognizable as such, used denominations easily distinguishable from one another, and was difficult to replicate.100 His analysis also considered the kind of paper best suited for producing banknotes:

The paper is distinguished . . . By its colour, a peculiar white, such as is neither sold in the shops, nor used for any other purpose . . . By its thinness and transparency, qualities which prevent any of the printed part of the note being washed out by turpentine or removed by the knife, unless a hole is made in the place thus practiced on . . . By its characteristic feel. There is a peculiar crispness in the toughness in Bank of England paper, which enables those who are accustomed to handle it, to distinguish

96 Id. at 36–37.
97 Id. at 37.
99 Granville Sharp, The Adaptation of Recent Inventions to the Purposes of Practical Banking, in 1 THE BANKERS’ MAGAZINE AND STATISTICAL REGISTER 673, 674 (1852).
100 SHARP, supra note 98, at 244.
instantaneously, by the sense of touch alone, true from false notes. . . 101

Industrial illustration’s contribution to banknote printing produced a monetary aesthetic most of us might identify with today. Machines produced ornamental, complex patterns of engraved lines embellished with a mix of pantograph arrangements and hand-drawn images. In theory, forgers could only reproduce such notes at a cost that defeated the value of forgery altogether. Although paper money’s use continues to decline relative to cashless payment, most of us intuitively understand that a twenty-dollar bill has a certain “look” and “feel” in much the same way Sharp might have contemplated. From a semiotic perspective, this monetary aesthetic unfolded amidst the rise of technical education, which produced a new class of skilled workers whose standing helped burnish public trust in paper money as an expression of British technological advancement.102

Strains of nineteenth-century thought echo issues discussed in relation to prehistoric coin production. They stress how industrial advancements in mass production combined with a cross-disciplinary group of experts to improve paper money’s appearance, weight, and texture. In a reconfigured schoolyard, these processes reinforced the notion that money’s physical features should function as a multisensory intermediary of trust, just as Lydian coin production operated in tandem with systems of weights and measures to authenticate currency. Although London’s seventeenth-century banking community was more enthusiastic about government entry into currency production than their ancient predecessors, both constituencies enjoyed the commercial effects. In the seventeenth-century context, increased circulation of money provided more capital for trade. In the ancient world, the expanded footprint of common, recognizable currency also supported trade expansion. In each historical period, states leveraged currency production to finance military campaigns and expand the territorial reach of their power. These campaigns produced financial burdens that ensured states would remain interested in producing money alongside other means of raising revenue to manage war-driven debt.

III. CONTINENTALS, GREENBACKS, AND THE TRAJECTORY TOWARD U.S. DOLLAR HEGEMONY

Although having a central bank gave England much needed cash and a new means of currency production, eighteenth-century military and colonial expansion continued to pose a financial strain on the country’s finances. The

101 Id. at 245–46.
102 Robertson, supra note 19, at 43, 50.
Seven Years’ War nearly doubled the national debt (from £75 million to £135 million). Spanning five continents, the global conflict’s North American theater was the site of battles between British and French colonies during the French and Indian War. After the fighting ceased, England needed money to pay for the British troops still stationed in the American colonies. Prime Minister George Grenville passed the Stamp Act, ostensibly to meet these costs. The statute required colonists to use stamped paper made in London for the printing of specified materials used throughout the colonies. Access to stamped paper required paying a tax. Already displeased about existing tax burdens and the lack of parliamentary representation in London, angry American colonists eventually declared independence, which led to war and the birth of a republic. This sequence of events shaped revolutionary America’s views of paper money, which received careful and unfavorable attention during the Constitutional Convention, as will be discussed later. Whereas taxation schemes like the Stamp Act effectively imposed currency use by requiring that taxes be paid in British pounds, America would eventually use central banking and multilateral institutions to exponentially increase its dollar circulation.

A. The South Sea Bubble

Early America’s relationship toward paper money thus grew out of perceived problems associated with new currency adoption. Notable failures, such as the infamous South Sea Bubble, fueled this antipathy. Formed in 1711, the South Sea Company was granted a monopoly over trade in Spain’s South American colonies in exchange for consolidating portions of public debt. Although such a monopoly appeared to be lucrative, it depended on establishing favorable trading relationships with Spain and its colonies. Indeed, the Treaty of Utrecht—which ended the Spanish War of Succession—gave England rights to provision Spain’s American colonies with slaves, which seemed to offer lucrative benefits to the South Sea Company. But two problems proved insurmountable. First, the directors had no experience trading in the so-called New World. Second, the

103 Kwarteng, supra note 17, at 39.
104 The Stamp Act of 1765, 5 Geo. 3, c. 12.
105 Kwarteng, supra note 17, at 39–40.
106 Id.
107 See generally Anne L. Murphy, The Origins of Financial Markets: Investment and Speculation Before the South Sea Bubble (2009) (providing an interesting history of the events leading up to the South Sea Bubble incident).
108 Kwarteng, supra note 17, at 34.
110 Id.
company ran into difficulties delivering slaves it bought from the Royal African Company, thanks to “competition from interlopers (including Jamaica), delayed collection of payments, and conflicts with Spain over duties payable.” All of these problems resulted in lost profits connected to the slave trade during the entire period between 1713 and 1718.

The British government nonetheless continued converting portions of its debt into South Sea shares, and, in what seems like an eighteenth-century precursor to the Enron scandal, the company’s management further stoked demand by circulating unfounded rumors about the extensive riches to be made through trade in South America. By January of 1720, South Sea shares were trading just above £100. Their value reached £330 by late March, when the company won a competitive bid to assume even more government debt in exchange for shares. A frenzy of similar ventures flooded the market, which garnered even more demand for South Sea shares, which were trading at £550 by May and reached a high of £1050 by late June. The public eventually learned the South Sea Company’s rumored trade in South America was little more than hype. Its shares plummeted to £170 by October of 1720, causing a string of embarrassing losses. In an ironic twist, the Bank of England’s director lost £347,000 and was forced into bankruptcy. The entire South Sea affair was a failed attempt to securitize debt raised through the printing of money, and was intertwined with an expansive view of state power that would prompt colonial Americans to fight for independence. Early America’s hostility toward paper money would give no indication that this new nation would pursue its own course of financial imperialism and produce the world’s dominant currency by the middle of the twentieth century.

B. The Failed Continental and Disputes Over the Power to Print Paper Money

But if that Congress had made its currency, to the exclusion of all other money, a legal tender for all demands, secured, as it would have been, by the wealth and resources of the nation, even then so

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111 Id.
112 Id.
113 Id.
115 Id. at 234.
116 Id. at 236.
117 Id.
119 KWARTENG, supra note 17, at 41.
richly endowed, a rational money system would have been established by the new republic, facilitating the triumph of its arms, compensating it for the great losses and expenses of the war, and at the same time breaking the shackles of the money-despotisms of the Old World in our republic, which to this day continue to oppress and embarrass our people.\textsuperscript{120}

Americans’ respective disdain for taxation and printed money were in constant tension before and after the American Revolution. In what seems to the modern reader like a temporary reversion to prehistoric norms, early English settlers adopted commodity-based monies other than cash to facilitate trade with indigenous peoples.\textsuperscript{121} Like their prehistoric ancestors, spoilage problems arising from trading in shells, wampum, and snail prompted settlers to find other forms of money, such as Spanish coins.\textsuperscript{122} Limited supplies of gold and silver, limited tax collection capacity, and the need to finance a war with England prompted the colonial government to issue paper notes.\textsuperscript{123} Known as Continentals, the notes were IOUs, a promise that the Continental Congress would pay holders their face value on demand and in silver coin.\textsuperscript{124} The colonial government issued $20 million worth of notes in 1776 and circulation reached $357 million by the end of the war.\textsuperscript{125} Initially holding their value, a Continental dollar devalued to roughly two or three cents per note by 1779.\textsuperscript{126} The notes ceased circulation as currency in May of 1781.\textsuperscript{127}

Competing interests complicated a young America’s ability to establish a stable national currency. Following the Continental dollar’s failure, Congress sought help from Robert Morris, who opened the Bank of North America (BNA) to serve as the country’s de facto central bank.\textsuperscript{128} Headquartered in Philadelphia, the BNA accepted deposits, kept accounts in dollars, and extended credit to government as well as private borrowers.\textsuperscript{129} Although the bank issued notes for circulation as currency, Connecticut was the only state to accept them, likely because many states were issuing their

\textsuperscript{120} Britton A. Hill, \textit{Liberty and Law Under Federative Government} 159, 160 (1874).
\textsuperscript{122} Id.
\textsuperscript{123} Id.
\textsuperscript{124} Hill, supra note 120, at 160; Cao, \textit{supra} note 21, at 73.
\textsuperscript{125} Hill, \textit{supra} note 120, at 160.
\textsuperscript{126} Kwarteng, \textit{supra} note 17, at 42.
\textsuperscript{127} Id.
\textsuperscript{129} Id.
own currencies.\textsuperscript{130} Morris realized the BNA could not expand circulation of its notes as the primary issuer of government currency while competing with state legislatures wanting to print their own notes. In Pennsylvania, Morris tried to eliminate the state-issued “Pennsylvania pound,” by refusing to accept these notes as deposits with the BNA and opposing further state issuances of the paper currency.\textsuperscript{131} In 1785, the state legislature revoked BNA’s charter in retaliation, triggering a two-year fight in which the BNA helped some of its shareholders win legislative seats.\textsuperscript{132} Morris regained the BNA’s charter in March of 1787.\textsuperscript{133}

Two months after BNA regained its charter, all but one of the eight Pennsylvania delegates to the Constitutional Convention would be BNA board members.\textsuperscript{134} All had been the BNA’s ardent supporters and approached the Convention determined to place a ban on state-issued money in the Constitution.\textsuperscript{135} Attendees never discussed the question of state-issued money, nor was it canvassed at prior conventions, which seems remarkable, given the strongly held views about printed money at the time.\textsuperscript{136} James Wilson, concurrently a member of BNA’s board and the Committee on Detail tasked with drafting the Constitution, added a clause banning state-issuance of paper money.\textsuperscript{137} The clause provided that “No State shall . . . coin money; emit bills of credit; [or] make any Thing but gold and silver coin a Tender in Payment of Debts[.]”\textsuperscript{138} The ban remained part of the draft until the Convention ended on September 17, 1787, and the Pennsylvania delegation blocked any attempt to remove it from the document.\textsuperscript{139}

Although the Constitution prohibited states from issuing paper money, it did not expressly permit the federal government to do so either, nor did it regulate the intricate details of minting. The Constitution simply provided that “Congress shall have Power . . . To coin Money, regulate the Value thereof, and of foreign Coin, and fix the Standard of Weights and Measures[.]”\textsuperscript{140} The Coinage Act of 1792 refined currency laws as it established the U.S. dollar as the country’s standard unit of money, instituted

\textsuperscript{130} Id. at 1787.
\textsuperscript{131} Id. at 1788.
\textsuperscript{132} Id.
\textsuperscript{133} Id.
\textsuperscript{134} Id.
\textsuperscript{135} Id.
\textsuperscript{136} See, e.g., KWARTENG, supra note 17, at 42 (quoting Pelatiah Webster as claiming that paper notes “polluted the equity of our laws, turned them into engines of oppression, corrupted the justice of our public administration, destroyed the fortunes of thousands who had confidence in it . . . and went far to destroy the morality of our people”).
\textsuperscript{137} Grubb, supra note 128, at 1789.
\textsuperscript{138} U.S. CONST. art. I, § 10, cl. 1.
\textsuperscript{139} Grubb, supra note 128, at 1789.
\textsuperscript{140} U.S. CONST. art. I, § 8, cl. 5.
the United States mint, and regulated coin making itself.\textsuperscript{141} Section 9 pegged the value of the U.S. silver dollar to that of the Spanish silver dollar, which was in wide circulation at the time and prescribed a metallic standard for the content of various coins—making the dollar a commodity-based currency.\textsuperscript{142} Section 10 of the statute prescribed coinage aesthetics that reprised the historical mix of utility and symbolism as an expression of power:

Upon one side of each of the said coins there shall be an impression emblematic of liberty, with an inscription of the word Liberty . . . and upon the reverse . . . there shall be the figure or the representation of an eagle with this inscription, “UNITED STATES OF AMERICA,” and . . . there shall be an inscription which shall express the denomination of the piece . . . .\textsuperscript{143}

Misgivings about paper money co-existed with a contest over states’ rights to print currency—reflecting competing visions of governance, regulation, and the limits of federal power. Traces of this tension exist in the U.S. Constitution itself, which prohibited states from issuing currency while remaining silent on the federal government’s express power to print money. The tension was also manifested in lawmakers themselves, many of whom served as board members and shareholders of banks that would benefit from banning state-issued money.\textsuperscript{144} Such bans proved to be a successful rent-seeking exercise for the BNA and for private banking throughout the United States by setting the stage for an explosion of private note issuance throughout the free banking era until the Civil War. Between 1790 and 1795, banknote circulation increased sixfold.\textsuperscript{145} Between 1800 and 1811, it would double again.\textsuperscript{146}

Disagreements over the relationship between control over printing money and federalism dramatically escalated under Andrew Jackson’s presidency.\textsuperscript{147} By the 1820s, private, state-chartered banks could issue notes, prompting a wide variety of paper money that competed with the U.S. dollar.\textsuperscript{148} The seemingly endless variety of notes was confusing enough to require Note Tables, a publication users relied on to determine an unfamiliar note’s authenticity.\textsuperscript{149} One of the BNA’s successors, the Second National Bank of the United States (SNBUS) tried to promote currency stability in its

\textsuperscript{141} Coinage Act of 1792, ch. 16, §§ 1–3, 20, 1 stat. 246–51 (1792).
\textsuperscript{142} Id. § 9.
\textsuperscript{143} Id. § 10.
\textsuperscript{144} Grubb, supra note 128, at 1788–89.
\textsuperscript{145} Id. at 1791.
\textsuperscript{146} Id.
\textsuperscript{147} Harold J. Plous, Jackson, the Bank War, and Liberalism, 38 SW. SOC. SCI. Q. 99, 100–02 (1957).
\textsuperscript{148} Id.
\textsuperscript{149} Id. at 101.
role as the national bank by limiting acceptance of banknotes to those redeemable in specie.\textsuperscript{150} This was of limited success. Having read about the South Sea Bubble, Jackson disliked both federalists and banks. He particularly disliked the SNBUS for a number of reasons: The bank answered to its directors and shareholders, rather than the American electorate; its ownership was concentrated in the Eastern United States where the currency circulation was most heavily focused; and 11.5 percent of its shares were under foreign control.\textsuperscript{151} Hostile to federalism, Jackson insisted the bank was unconstitutional, despite the U.S. Supreme Court’s ruling in \textit{McCulloch v. Maryland}, which held that the federal government’s right to establish the bank was one of the implied powers not expressly enumerated in the Constitution.\textsuperscript{152} Single-minded in his determination to destroy the bank, Jackson vetoed its recharter bill in 1832 and ordered the federal government to move its deposits to other state institutions.\textsuperscript{153} SNBUS’s charter as the country’s national bank expired in 1836.\textsuperscript{154}

\textbf{C. Chaos, Currency Reporters, and Expressions of Federal Power Rooted in Wartime Finance}

Jackson’s destruction of the SNBUS helped usher in the “free banking” era, when banks were free to issue their own currency absent central banking oversight.\textsuperscript{155} This fractured monetary landscape echoed prehistoric societies’ myriad coinage systems and localized markets. A merchant in Boston might not accept a note issued by a bank in Atlanta, deeming it unfamiliar and thus untrustworthy. Like their British counterparts, America’s private banks tried producing notes that blended functional and aesthetic elements—and published this information in Note Tables to help the public.\textsuperscript{156} But forgers used these resources to produce their own counterfeit notes, creating a cat-and-mouse problem for banks.\textsuperscript{157} Although the wider debates about free banking’s economic effects are beyond the scope of this Article, they remain a part of contemporary scholarly debate—libertarian scholarship remains dubious about claims that free banking was inherently unstable.\textsuperscript{158}

\begin{footnotes}
\item[150] Plous, \textit{supra} note 147, at 100.
\item[151] \textit{Id.} at 102.
\item[152] 17 U.S. (4 Wheat.) 316 (1819).
\item[153] Plous, \textit{supra} note 147, at 105.
\item[154] \textit{Id.}
\item[155] \textit{Id.} at 107.
\item[157] \textit{Id.}
\item[158] See, e.g., Kam Hon Chu, \textit{Is Free Banking More Prone to Bank Failures than Regulated Banking?}, 16 \textit{Cato J.} 47, 58 (1996) (arguing “that free banking is not more prone to bank failures
Nevertheless, the wide variety of privately issued notes complicated interstate commerce.

The Civil War prompted Congress to issue new notes in 1862 to finance the Union Army.\textsuperscript{159} Much like its former colonizer, the war’s economic demands placed considerable strains on the country’s finances at a time when there was a limited supply of coins. Called “greenbacks” because of their color, the new notes were printed in $5, $10, and $20 denominations.\textsuperscript{160} Inevitably, there were court challenges alleging conflict with Article I of the U.S. Constitution; however, the Supreme Court would eventually overturn a prior ruling\textsuperscript{161} and hold that Congress had constitutional authority to deem paper monies legal tender.\textsuperscript{162} In the Civil War’s aftermath, the federal government used money as a social ordering device. Somewhat reminiscent of the Roman Empire’s use of coins, the federal government pursued “the adoption and dissemination of a single, territorial currency that worked to ratify tribal communion among subjects as culturally and geographically diverse as lobster fisherman in Maine and silver-miners in Nevada.”\textsuperscript{163} A number of smaller schoolyards were now consolidated into one.

\textbf{D. Twentieth Century Monetary Hegemony and a Globalized Schoolyard}

Although Americans had long wrestled with the challenge of endowing printed notes with a specific meaning as to buttress its worth in social, economic, and political terms, their national currency would eventually manifest a degree of importance that would transcend paper money and become one of the most consequential tools of modern economic statecraft. In 1913, Congress restored central banking and created the Federal Reserve System, a network of regional banks governed by a board of presidential appointees, subject to senate approval.\textsuperscript{164} The Fed, as it became known, would furnish currency, manage the country’s money supply, supervise the American banking system, and serve as the lender of last resort. The government would expand or contract the national money supply through the Federal Reserve Bank of New York’s open market operations, where

\begin{footnotes}
\item[159] KWARTENG, supra note 17, at 71.
\item[160] Cao, supra note 21, at 75.
\item[161] Hepburn v. Griswald, 75 U.S. (8 Wall.) 603 (1870).
\item[163] Conway, supra note 156, at 440.
\item[164] Cao, supra note 21, at 77.
\end{footnotes}
government securities were bought or sold subject to committee approval.\textsuperscript{165} The New York Fed’s commitment to accepting payments in gold quickly fortified U.S. currency’s standing among foreign banks.\textsuperscript{166} The First World War limited European banks’ capacity to extend credit, and thus their ability to finance trade. These institutions took bills from their clients’ imports and exchanged them for credit in U.S. dollars, which significantly expanded extraterritorial participation in American currency.\textsuperscript{167}

A mix of events over a forty-year period would weaken other major western currencies relative to the U.S. dollar. The United States held three-quarters of England’s wartime debt during the First World War.\textsuperscript{168} At about the same time, the pound was in decline, thanks in part to prohibitions against lending to borrowers outside the British Empire in 1915 and to the suspension of gold payments a year earlier.\textsuperscript{169} American banks filled this void through global expansion, establishing branches all over the world to facilitate transactions in U.S. dollars.\textsuperscript{170} Other world currencies continued to decline after the Second World War. The effects of Germany’s interwar economic decline preoccupied West Germany with fears of a return to hyperinflation such that its monetary policies made the deutschmark an undesirable reserve currency.\textsuperscript{171} France’s war in Algeria consumed two-thirds of its central bank’s reserves between 1955 and 1957.\textsuperscript{172}

The Bretton Woods system was the most consequential monetary development during this forty-year period. As the Second World War drew to a close, delegates from allied nations negotiated a series of rules for commercial and financial arrangements among American allies, western European countries, and Japan.\textsuperscript{173} The negotiations produced the 1944 Bretton Woods Agreement, which marked the first attempt to formalize

\textsuperscript{165} Id.
\textsuperscript{166} Id.
\textsuperscript{167} Kwarteng, supra note 17, at 98.
\textsuperscript{168} Id. at 106.
\textsuperscript{169} Id. at 107–08.
\textsuperscript{170} Eichengreen, supra note 121, at 28. The global economic order now reached a point in its development where countries were sensitive to relationships between competition and currency’s impact on the cost of imports and exports. For example, England reduced the cost of its exports when it abandoned the gold standard in 1931. Barry Eichengreen & Peter Temin, The Gold Standard and the Great Depression, 9 Contemp. Eur. Hist. 183, 193 (2000). Devaluing the pound effectively reduced the price of British goods sold in U.S. markets. President Roosevelt responded by devaluing the U.S. dollar against gold. He did this by prohibiting U.S. citizens from privately owning gold and ordering the private surrender of gold to the federal government at 20.67 per ounce. Exec. Order No. 6,102 (1933), reprinted in 2 The Public Papers and Addresses of Franklin D. Roosevelt 111, 111-12 (Samuel I. Rosenman ed., 1938); Gold Reserve Act of 1934, Pub. L. No. 73-87, §§ 2–6, 48 Stat. 337, 340.
\textsuperscript{171} Eichengreen, supra note 121, at 44.
\textsuperscript{172} Id. at 42–43.
\textsuperscript{173} Michael Mastanduno, System Maker and Privilege Taker, 61 World Pol. 121, 128 (2009).
twenty-first century monetary relationships among signatory states.\textsuperscript{174} The agreement’s features most relevant to this Article required participating countries to maintain exchange rates within one percent of each other by tying their currencies to gold.\textsuperscript{175} It aimed to discourage competitive currency devaluation through the newly formed International Monetary Fund (IMF) funded by participating countries through a quota system.\textsuperscript{176} These arrangements strengthened the U.S. dollar because it served as the metric for setting gold’s value,\textsuperscript{177} became the world’s key currency reserve, and was the currency countries commonly used to implement IMF’s balance of payments programs.\textsuperscript{178}

Organized around the U.S. dollar, the Bretton Woods system heavily depended on America’s stewardship of its own finances. This was problematic. By the 1960s, a balance of payments problem arose where foreign holdings exceeded U.S. gold reserves, meaning the United States could never honor its obligation to swap gold for dollars if foreign central banks demanded gold for their dollar reserves.\textsuperscript{179} This problem was due in part to Great Society programs and the Vietnam War’s costs, which strained the U.S. Treasury.\textsuperscript{180} On August 15, 1971, President Nixon closed the gold window, which meant foreign central banks could no longer convert their dollar holdings into gold.\textsuperscript{181} This decision aimed to avert a run on U.S. gold reserves and to address America’s balance of payments problem by pressuring other countries to revalue their own currencies. This strategy was combined with a program of domestic wage and price controls designed to reduce inflation and became known as the Nixon Shock.\textsuperscript{182} Dollar-gold conversion would eventually give way to fiat-based currencies floating freely against each other.\textsuperscript{183}

\textsuperscript{174} John W. Pehle, The Bretton Woods Institution, 55 YALE L.J. 1127, 1130 (1946).
\textsuperscript{175} Id. at 1128.
\textsuperscript{176} Id. at 1130.
\textsuperscript{177} This presaged the pattern of pricing other key commodities in U.S. dollars, which typically required buyers and sellers to pay for them in a prescribed currency. See generally DAVID E. SPIRO, THE HIDDEN HAND OF AMERICAN HEGEMONY, PETRODOLLAR RECYCLING AND INTERNATIONAL MARKETS (1999) (providing a helpful discussion of commodity-based pricing as a hegemonic practice).
\textsuperscript{179} Irwin, supra note 178, at 30; see also ROBERT TRIFFIN, GOLD AND THE DOLLAR CRISIS: THE FUTURE OF CONVERTIBILITY (1960) (describing what is known as the Triffin Dilemma).
\textsuperscript{181} Cao, supra note 21, at 67.
\textsuperscript{182} Id. at 86.
\textsuperscript{183} Id. at 87.
Despite its significance, the Nixon Shock did not diminish the dollar’s dominance, which now carries global implications to the extent that it is no longer “American” in the strictest sense. According to the Federal Reserve, $1.70 trillion worth of currency was in circulation as of January 31, 2019. These estimates of foreign circulation range from $500 to $759 billion in paper currency. These figures would mean somewhere between 30 and 45 percent of American currency circulates abroad, much of it used in transactions among parties with no territorial link to the United States. Historical events, commodity pricing practices, and a heavily networked global financial system have endowed the dollar with such importance as to give its issuer considerable rent seeking power—creating two convergent forces. The first effectively “nudges” parties toward using the dollar, and the second allows the United States to enjoy regulatory dominion over parties using its currency anywhere in the world. This reality heavily incentivizes banks around the world to comply with U.S. regulations under threat of exclusion from lucrative American capital markets.

Even parties voluntarily choosing to denominate transactions in U.S. dollars on foreign soil cannot easily place themselves beyond the reach of American law. The Office of Foreign Assets Control’s (OFAC) 2017 settlement agreement with a Singapore-based company and its subsidiary is instructive. OFAC alleged that TranTel executed contracts with Iranian companies in the period between August 25, 2010, and November 5, 2011; and that the parties to these transactions facilitated the purchase, delivery, and installation of telecommunications equipment for several energy projects within Iranian territory. TranTel hired and engaged several different third-party vendors—including several Iranian companies—to provide goods and services on its behalf in relation to this project. TranTel and its subsidiaries transferred funds to these third parties using a U.S. dollar account housed in a Singaporean bank. TranTel and its subsidiaries executed the funds transfers two months after signing an undertaking “not to route any transactions related to Iran through [the Bank], whether in Singapore or

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184 How Much U.S. Currency Is In Circulation?, Fed. Reserve Sys., https://www.federalreserve.gov/faqs/currency_12773.htm [https://web.archive.org/web/20191113192458/https://www.federalreserve.gov/faqs/currency_12773.htm] (last visited May 20, 2020) (“This figure includes Federal Reserve notes ($1,655.2 billion), U.S. notes ($0.2 billion), currency no longer issued ($0.2 billion), and coins outstanding ($47.2 billion”).


187 Id.

188 Id.
elsewhere.” According to OFAC, these payments did not indicate their relation to Iran and were routed through the U.S. financial system. OFAC further alleged the transfers caused six separate financial institutions to violate U.S. sanctions by engaging in the prohibited exportation of financial services—specifically, processing U.S. dollar payments—from the United States to Iran or for the benefit of Iran. TransTel resolved the enforcement action through a $12 million settlement agreement.

E. A Reimagined Schoolyard Where There Is Much at Stake

In two and a half centuries, the United States transformed itself from a colony seeking to break free from tax-driven colonialism to a major world power in large part because it gave money meaning. This extraordinary path originated from England’s need for money, which set in motion a chain of events that would forge a remarkable relationship between a new nation and printed currency. Sharp divisions over states’ rights relative to the exercise of federal power were mediated through printed money from America’s founding onwards. The Federal Reserve, war’s economic imperatives, and a changing global order allowed the United States to forge a globalized monetary schoolyard. The U.S. dollar now sits at the center of a complex structural paradigm that remains heavily dependent on its continued dominance, which demands that scholars frame the question of cryptocurrency’s sustainability in both historical and structural terms.

IV. CRYPTOCURRENCY AND HISTORY’S VALUE TO THE LEGAL ANTHROPOLOGY OF MONEY

This Article has canvassed three historical periods where currency adoption has grown out of a “call and response” between demand for a viable medium of exchange—actors willing to produce objects that function as money—and the state. Money’s evolution through these periods demonstrates its relationship to social ordering. It also explains why money’s classic definition endures as a fundamentally social phenomenon. Some degree of societal agreement is essential to determining what is of value, establishing units of account, and forming consensus around what constitutes a viable store of value. Money’s aesthetic features have helped to reinforce this agreement, especially where the state has entered the business of producing money in pursuit of its own interests or for the sake of a unifying

189 Id.
190 Id.
191 Id.; see also 50 U.S.C. § 1705(a) (2018); 31 C.F.R. § 560.204 (2019).
192 OFFICE OF FOREIGN ASSET CONTROL, supra note 186.
Cryptocurrency derives its contemporary significance from this history.

Cryptocurrency’s analytical novelty resides in its mixture of the old and new, by combining twenty-first technology with the revival of private currency production. Its unusual combination of qualities represents a return to private, decentralized means of producing money that is also globally dispersed and technologically advanced. Cryptocurrencies are also unique in that their production systems can be both communal and anonymous. Everything about its form and function bear little resemblance to historical monetary paradigms.

This Article’s goal is not to simply make an argument for or against regulation, but to argue that the “call and response” attending prior arrivals of new currency will persist, regardless of present-day regulatory posture. Formal or informal monetary regulation has always been present insofar as consequences existed for those who violated rules that evolve around money’s normative uses: dishonest merchants risked being excluded from markets where nobody wished to do business with them; strong moral admonishments appear in the Old Testament about having defective weights and measures for converting money; the Greek world criminalized the counterfeiting of coins; and the early Anglo-American experiences with paper money begat intense legal and political disputes about the government’s role in producing paper currency as a moral hazard. Today’s international monetary order similarly deploys public and private rule-making to support compliance with existing norms deemed necessary to support our modern financial systems. By its nature, cryptocurrency challenges prevailing social and regulatory orders because it seems mismatched with the infinite array of structures and practices that now depend on the world’s dominant currency retaining its status. The temptation to protect the incumbent currency through regulation is therefore understandable, given its potential to upend what is now a global monetary schoolyard. But how will the children and adults respond?

A. What Is Cryptocurrency?

It is helpful to think of cryptocurrency as a combination of cryptography and currency. Cryptography refers to the process of turning plain language into seemingly unintelligible code or vice versa. Data encryption supports

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193 Geva, supra note 32, at 132.
a wide range of commercial and military functions, seeking to preserve the confidentiality of encrypted content, to prevent tampering during data transmittal, and to ensure parties sending and receiving information can authenticate their relationship to each other and to the data moving through encrypted channels.\footnote{Id. at 1584–86.}

Cryptocurrency applies cryptography to finance, by creating and distributing digitally generated money. When two children agree to exchange a comic book for a baseball card, the trade is a real-time and in specie, meaning each child experiences the trade by physically holding the traded items during the transaction. Digitizing this exchange, however, becomes another matter. How does one child confirm the origin or destination of the item received? How does either child know whether the intended recipient or some other child received the items bargained for? To the degree cryptocurrencies represent digital transfers of money, they are designed to address the double-spending problem, which uses encryption to prevent duplication by ensuring parties to a transaction send and receive money as agreed.\footnote{Kelsey L. Penrose, Note, \textit{Banking on Bitcoin: Applying Anti-Money Laundering and Money Transmitter Laws}, 18 N.C. BANKING INST. 529, 533 (2014).}

More than 5,000 cryptocurrencies exist today, with Bitcoin being the most common, dominating more than sixty percent of the virtual currency market with more than 18 million units valued around $9,000 (U.S.) per coin.\footnote{Top 100 Cryptocurrencies by Market Capitalization, \textsc{CoinMarketCap} (May 9, 2020, 6:00 PM), [https://web.archive.org/web/20200509220642/https://coinmarketcap.com/].} Bitcoin is a decentralized currency, meaning no centralized public or private entity governs its production.\footnote{Nikolei Kaplanov, \textit{Nerdy Money: Bitcoin, the Private Digital Currency, and the Case Against Its Regulation}, 25 LOY. CONSUMER L. REV. 111, 115–116 (2012).} There are different ways to obtain Bitcoin. In addition to accepting it as a form of payment for goods or services, parties can buy it on one of hundreds of exchanges, “mine” it by using computers to carry out a public-key cryptography, or “earn” it through sophisticated gaming applications.\footnote{Eitan Altman et al., \textit{Blockchain Competition Between Miners: A Game Theoretic Perspective}, 1 FRONTIERS IN BLOCKCHAIN 1 (2020).} Each Bitcoin has both a public and private key, which ensures funds stored in the Bitcoin itself are being spent by the rightful owners.\footnote{Trevor I. Kiviat, \textit{Beyond Bitcoin: Issues in Regulating Blockchain Transactions}, 65 DUKE L.J. 569, 580 (2015).} Each time someone uses or “spends” their coin, they use a private key to sign the transmission and send a special message through a peer-to-peer network.\footnote{Eric P. Pacy, Note, \textit{Tales from Cryptocurrency: On Bitcoin, Square Pegs, and Round Holes}, 49 NEW ENG. L. REV. 121, 125 (2014).} The transmission includes the new owner’s public key. The transaction’s details are shared with the entire

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\textsuperscript{196} Id. at 1584–86.


\textsuperscript{198} Top 100 Cryptocurrencies by Market Capitalization, \textsc{CoinMarketCap} (May 9, 2020, 6:00 PM), [https://web.archive.org/web/20200509220642/https://coinmarketcap.com/].


\textsuperscript{200} Eitan Altman et al., \textit{Blockchain Competition Between Miners: A Game Theoretic Perspective}, 1 FRONTIERS IN BLOCKCHAIN 1 (2020).


Bitcoin network, producing a distributed ledger. Bitcoin’s distributed ledger system is called a blockchain and has a range of potential applications as a highly efficient “shared database.” This system was the first to use peer-to-peer networks to solve the double-spending problem posed by digital currency.

As with other forms of modern money, Bitcoin is a store of value. Its digital quality, however, alters traditional conceptions of aesthetic and storage, because, technically speaking, Bitcoin cannot be “stored” anywhere. But there are various ways to store the public and private keys used to access and transmit Bitcoin—methods commonly described as wallets. Users can easily find online guides to help them store the keys on paper or plastic cards—called paper wallets—which are considered immune to hackers. Several private services generate paper wallets using tamper-resistant features or holographic labels. Physical Bitcoins—which mimic coins—have also become popular. These coins are loaded with a fixed amount of value, which cannot be spent without access to the private key. Until November of 2013, Mike Cadwell, a cryptocurrency enthusiast, designed the Casascius Coin, which is the medallion most of us visually associate with Bitcoin. Private keys are hidden under a hologram the user peels off to leave a tamper-evident pattern. The coin loses its worth once used. Physical Bitcoins offer the convenience of off-line, face-to-face trading, which can limit the efficacy of federal regulation. Other storage methods include mobile applications, desktop programs, and various hardware devices.

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203 It is beyond the scope of this Article to canvas the wider applications of distributed ledger technologies. For helpful discussions, see Jean Bacon et al., Blockchain Demystified: A Technical and Legal Introduction to Distributed and Centralized Ledgers, 25 RICH. J.L. & TECH. 1, 101–06 (2018); Carla L. Reyes et al., Distributed Governance, 59 WM. & MARY L. REV. ONLINE 1, 32 (2017–2018); Dirk A. Zetzsche et al., The Distributed Liability of Distributed Ledgers: Legal Risks of Blockchain, 2018 U. ILL. L. REV. 1361, 1406 (2018).


205 Id.


208 Id.


211 Id.
B. Law’s Response to the Shifting Virtues of Cash and Non-traceable Movements of Money

Bitcoin’s precise origins remain a mystery. In October of 2008, an anonymous person or group of people responsible for its development published a paper titled, *Bitcoin: A Peer-to-Peer Electronic Cash System*, under the name Satoshi Nakamoto. Significantly, the paper’s rationale for Bitcoin revolves around trust and its role in supporting transactional efficiency in the marketplace:

Commerce on the Internet has come to rely almost exclusively on financial institutions serving as trusted third parties to process electronic payments. While the system works well enough for most transactions, it still suffers from the inherent weaknesses of the trust based model. . . . These costs and payment uncertainties can be avoided in person by using physical currency, but no mechanism exists to make payments over a communications channel without a trusted party.

What is needed is an electronic payment system based on cryptographic proof instead of trust, allowing any two willing parties to transact directly with each other without the need for a trusted third party. Transactions that are computationally impractical to reverse would protect sellers from fraud, and routine escrow mechanisms could easily be implemented to protect buyers. In this paper, we propose a solution to the double-spending problem using a peer-to-peer distributed timestamp server to generate computational proof of the chronological order of transactions.

This vision of the monetary schoolyard limits reliance on financial institutions, which Nakamoto perceives as inefficient payment system participants. But some of the inefficiencies Nakamoto complains of originate from important consumer protection laws that assume greater importance in an increasingly cashless society. For example, federal law outlines provisions for resolving alleged billing errors related to credit cards, such as charges the cardholder never made to his or her account, non-delivery of goods, and requests for clarification about the charge itself.

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213 *Id.* at 1.

214 *Id.*

Whereas prior iterations of new money attracted forgers, Bitcoin’s networks posed concerns about supporting illicit trade on now-defunct websites like Silk Road. Silk Road was an internet marketplace founded in February of 2011 by Ross Ulbrich who operated under the Dread Pirate Roberts. Silk Road differed from mainstream trading platforms like eBay or Craigslist because it facilitated illegal transactions, such as the sale of drugs, stolen credit cards, and counterfeit identification. Accessible only through untraceable internet browsers, the site also supported transactions connected to human trafficking, corporate espionage, and a host of other criminal activity. Silk Road only accepted payment by Bitcoin, mainly because its heavily encrypted transmission system concealed both users’ identities and evidence of their links to crime. Ulbrich did not directly sell any products, but collected a fee from the site’s users. The platform generated more than $22 million in its first year of operations and netted tens of millions of dollars in commissions until the FBI was able to apprehend Ulbrich and shut down his website. The FBI also seized 28 million Bitcoins belonging to Ulbrich and Silk Road’s users—none of whom came forward to reclaim their digital currency because doing so would reveal their identities. This represented a de facto forfeiture worth $130 million.

Silk Road’s story illustrates how cryptocurrencies arrived at a time when society had well-established, surveillance-based monetary norms deemed necessary to support public and private activity. Internet-supported and technologically-aided, surveillance capitalism allows commercial actors to identify spending patterns within and across demographic groups. Similarly, governments use public law to devise reporting obligations that require financial institutions to disclose particular movements of money.

217 Id.
218 Id.
219 Id.
220 Id.
222 Id.
223 Id.
224 Most of us experience a form of surveillance capitalism when we pay for goods or services online and subsequently find our social media pages populated with advertising originating from the same industries where we just made a purchasing decision. Similarly, we may end up getting unsolicited flyers or “junk mail.” See Bruno Zeller et al., The Internet of Things – The Internet of Things or of Human Objects? Mechanizing the New Social Order, 47 RUTGERS L. REC. 15, 59–60 (2019–2020) (describing surveillance capitalism and cautioning that modern technologies focus and amplify the use of consumer data to boost sales).
Capitalism and industrialization have also reinforced this institutional preoccupation with surveillance. As increased human mobility has corralled people into cities, urbanization has fostered anonymity, with the result that trust is equated with certainty and no longer functions as an independent value.\textsuperscript{226} Surveillance-based regulatory models extend this ethos into law, reflecting a mix of cultural shifts and a pragmatic need to keep pace with an evolving monetary landscape. These models also sustain the “call and response” in relation to themes expressed in Nakamoto’s original rationale for establishing Bitcoin.

Several federal agencies have articulated a regulatory position on cryptocurrency. The Financial Crimes Enforcement Network (FinCEN) is most relevant to this Article. FinCEN observes a distinction between users who buy goods or services with currency, administrators who put virtual currency into (or withdraw it from) circulation, and parties who exchange digital currency for conventional money or other kinds of digital currencies.\textsuperscript{227} FinCEN treats administrators and exchangers as Money Services Businesses (MSBs) subject to the Bank Secrecy Act (BSA).\textsuperscript{228} MSBs must register with the Department of Treasury within 180 days of their formation.\textsuperscript{229} So-called “know-your-client” rules,\textsuperscript{230} record-retention obligations,\textsuperscript{231} and requirements to comply with state MSB registration requirements also operate to regulate administrators and exchangers.\textsuperscript{232} These provisions create data relay sources by requiring that registrants collect client information in a prescribed form, making it readily shareable with myriad government agencies.

The government’s response to cryptocurrencies such as Bitcoin reveal their disruptive potential. Money’s modern institutional treatment rests largely on access to information needed to animate the full spectrum of public and private goals in the heavily networked financial arena. By their nature, cryptocurrencies undermine this access—in keeping with Nakamoto’s goal of designing a payment system that authenticates transactions without relying

\textsuperscript{226} See Steven L. Nock, The Costs of Privacy: Surveillance and Reputation in America (1993); Georg Simmel, The Stranger, in On Individuality and Social Forms 143, 146–48 (Donald N. Levine ed., 1971) (positing that as people settle within areas conducive to their trade their relationships to the community become a detached involvement in which trust is derived from commercial practice rather than deep social roots).

\textsuperscript{227} FinCEN, Application of FinCEN’s Regulations to Persons Administering, Exchanging, or Using Virtual Currencies (2013).


\textsuperscript{229} 31 C.F.R. § 1010.100(ff)(5) (2019).

\textsuperscript{230} Id. § 1010.C.

\textsuperscript{231} Id. § 1010.D.

on conventional banking institutions. For the same reasons, digital currencies’ stateless nature does not intuitively lend itself to traditional responses in the way governments might engage in so-called currency wars, for example.\(^{233}\) Thus far, the state has used two strategies. It has used public law to steer cryptocurrencies’ key actors—namely administrators or exchangers—towards adopting registration and reporting practices akin to those required of conventional financial institutions, and it has found ways to discourage actors who have robust record keeping and reporting practices from engaging in commercial activities with those who do not.

Silk Road’s demise, compared to other financial surveillance operations, is instructive. Rather than an indication of cryptocurrency’s weakness, Ross Ulbrich’s arrest demonstrates how his own missteps proved to be his downfall. When the website attracted national attention as a market for illicit trade, a multi-agency task force established Operation Marco Polo and began monitoring the site.\(^ {234}\) Investigators only uncovered Ulbrich when he posted an announcement on a message board seeking to hire someone using an email containing his real name.\(^ {235}\) Absent such slipups, it is unclear that investigators would have found Ulbrich, and his discovery did not uncover any of Silk Road’s customers.\(^ {236}\) What information investigators could obtain regarding Silk Road was only possible because they seized Ulbrich’s laptop before he could close it.\(^ {237}\) Operation Marco Polo’s success was accidental at best, and stands in stark contrast to financial surveillance exercises such as the CIA’s controversial monitoring of the SWIFT network.\(^ {238}\) Operating pursuant to an administrative subpoena, the latter operation allowed the government to monitor millions of records in search of transactions related to terrorist groups—leading to one arrest.\(^ {239}\) These two examples demonstrate what government can do with more detailed access to information and the ways its functions depend on chance when such access is limited.\(^ {240}\)

\(^{233}\) A “currency war” or “competitive devaluation” occurs where countries deliberately lower the value of their national currencies in the course of competing for favorable exchange rates. See Cao, supra note 21, at 66 n.48.


\(^{235}\) Id.

\(^{236}\) Id.

\(^{237}\) Id.


\(^{239}\) Id.

\(^{240}\) Id.
C. A Historical View of Cryptocurrency’s Adoption Challenges

As with prior forms of money, cryptocurrency’s future depends on sufficient degrees of social participation and stability. Spoilage, dishonesty with weights and measures, forgery and reckless overconfidence in paper money, and state ambitions have each played their respective role in prior currency adoption challenges across each of the historical periods described in this Article. This pattern reaches into present-day adoption challenges with digital currency.

The instructive story of a Canadian exchange platform and its co-founder reads like complex mystery. Gerald Cotten co-founded QuadrigaCX (Quadriga), which operated an exchange allowing customers to store, buy, and sell various cryptocurrencies on its platform.\(^{241}\) Because Canada has no cryptocurrency regulation, Canadian chartered banks would not offer banking services to this industry.\(^{242}\) This limitation forced Quadriga to rely on third parties to administer Quadriga’s fiat treasury functions.\(^{243}\) Cotten was primarily responsible for wallet storage protocols, which included safeguarding passwords for Quadriga’s cryptocurrency inventory.\(^{244}\) When Cotten died on December 9, 2018, he did not leave behind a way to access $180 million worth of inventory.\(^{245}\) The ensuing liquidity challenges prompted Quadriga and its three affiliates to file for bankruptcy protection on February 5, 2019, pursuant to Canada’s Companies’ Creditors Arrangement Act.\(^{246}\)

Circumstances surrounding Quadriga’s demise and the loss of its customers’ money continue to fuel intense speculation. Cotten filed a will twelve days before his death in India, prompting skeptics to wonder if he is still alive.\(^{247}\) According to other exchange operators, distributed ledgers suggest someone “moved the missing Quadriga funds to Internet-connected wallets on other exchanges.”\(^{248}\) In addition, Quadriga’s co-founder, Michael Patryn, was revealed to have been convicted in U.S. courts regarding the


\(^{242}\) Id.

\(^{243}\) Id.


\(^{245}\) Id.

\(^{246}\) R.S.C. 1985, c C-36 (Can.).


\(^{248}\) Id.
now-defunct Liberty Reserve, a website where customers could use digital currency to launder money.\textsuperscript{249}

Quadriga’s story shares much in common with the South Sea Bubble, and suggests cryptocurrency’s future is not necessarily bleak despite its present-day problems. Although the two events involved qualitatively different transactions, both events attracted investors keen to directly or indirectly form a new monetary concept; each occurred in the early phases of a new currency’s development and prior to widespread consumer use; both attracted considerable forensic scrutiny; dubious characters appear in each scenario, showing themselves willing to either deceive investors or support other forms of illegal behavior; and investors involved in each controversy lost large sums of money. None of these facts endear the public to new currency absent an institutionalized process that shores up trust as a necessary precondition to wider use.

\textbf{CONCLUSION}

Ancient economies were localized enough for moral codes and the threat of ostracism to sufficiently regulate participant behavior. A mix of monarchical rule and British lawmaking accompanied paper money’s embrace in the seventeenth century. Early Americans secured their independence and expressed internal disputes over the proper exercise of federal power through debates about paper money. In the twenty-first century, the nation whose founders expressed disdain for paper currency would find ways to strengthen it through a mix of public law, multilateral engagement, and hegemony. There is now a global constituency of currency users whose fortunes depend on the dollar’s standing in a payment space that functions as the world’s economic nerve center.

What is law’s role in response to a currency that shares some things in common with prior forms of money while fundamentally altering incumbent paradigms? Cryptocurrencies, like Bitcoin, replace trust with authentication protocols that leave users free to choose the aesthetic and functional stores of value best suited to them. These features coexist alongside the dollar, which continues to operate as cryptocurrency’s primary valuation metric. Law’s response to such a currency presents an anthropological problem—just as prior currencies have evolved in response to deficiencies with existing payment structures, how might cryptocurrencies introduce efficiencies that advance the common good in ways that promote widespread and sustainable

adoption? On the other hand, how does an interdependent financial system and its attendant global order cope with such changes?

History suggests societies will continue developing new forms of money, posing challenges to incumbent norms in the process. In keeping with past experience, cryptocurrencies challenge us to consider two questions: The first is whether government or some organizing force has a role to play in engendering trust while addressing the efficiency problems Nakamoto aims to tackle. The second is whether such an organizing force can remain mindful of the common good as something distinct from the pursuit of institutional or state goals in the global schoolyard.

Legal scholars writing in this field should turn their attention to the question of law’s role beyond proscriptive or prohibitive terms and consider its value in shaping money’s ongoing evolution. The modern history of financial regulation belies a tension between lurking private interests and the need for stability as a vital economic ingredient. Today’s monetary frameworks demand thoughtful attention to the past while allowing private actors sufficient space to function efficiently in the modern schoolyard.